

ABSTRACT OF THE INVENTION

The present invention employs a mixture of digital signal processing and analog circuitry to reduce spurious noise in continuous time delta sigma analog-to-digital converters (CT Δ Σ ADCs). Specifically, a small amount of random additive noise, also referred to as dither, is introduced
5 into the CT Δ Σ ADC to improve linear behavior by randomizing and de-correlating the quantization noise from the input signal without significantly degrading the SNR performance. In each of the embodiments, digital circuitry is used to generate the desired randomness, de-correlation, and spectral shape of the dither and simple analog circuit blocks are used to appropriately scale and inject the dither into the CT Δ Σ ADC loop. In one embodiment of the
10 invention, random noise is added to the quantizer input. In another embodiment, a relatively small amount of current is randomly added or subtracted in the feedback loop to randomize and de-correlate the quantization noise from the input signal while maintaining required signal to noise ratios.